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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,411	12/29/2005	Yanmin Zhu	678-1999	6764

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EXAMINER	
CHEN, SHIN HON	
ART UNIT	PAPER NUMBER
2131	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,411	ZHU, YANMIN	
	Examiner	Art Unit	
	SHIN-HON CHEN	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-12 have been examined.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/7/08 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-9, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Dinsmore et al. U.S. Pat. No. 7043024 (hereinafter Dinsmore).

5. As per claim 1, Dinsmore discloses a method for key management and assignment for information encryption in a radio network system which include a root node, plurality of

intermediate nodes in the root node and plurality of leaf nodes in each intermediate nodes of the radio network system providing Multimedia Broadcast or Multicast service, comprising the steps of: generating a group key for the root node which has plurality of intermediate nodes as child nodes (Dinsmore: column 1 lines 51-67); generating an intermediate key using the group key for each of the intermediate nodes that have its own one parent node and one or more child nodes and have its own intermediate key (Dinsmore: column 1 line 60 – column 2 line 7: hierarchy of keys and each intermediate node/interior node has its own key); requesting a leaf node key in a user equipment (UE) for the service; generating the leaf node key using the intermediate key (Dinsmore: figure 1: key of each node descends from a parent node key); delivering the leaf node key as a private key to the UE on a dedicated channel (Dinsmore: column 1 lines 15-23: secure unicast within multicast system); checking for a key update assignment according to a change of a UE; and apply the key update assignment that transmits the node key in different modes according to the change of UE (Dinsmore: column 2 lines 1-7 and 19-31: the mode of key update assignment varies depends on whether if certain users are evicted from the system, if no user is evicted, replacement of key is not necessary).

6. As per claim 2, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein each user keeps node key information on all nodes that the node chain where he/she locates to the root node of the tree, including leaf node, intermediate nodes of respective layers and the root node (Dinsmore: column 2 lines 1-7).

7. As per claim 3, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein when a new user joins in the service, this user is connected to a node via its access parent node as a new leaf node and this user needs to obtain keys of all nodes including intermediate nodes and root nodes that are passed by the node chain from the access parent node to the root node; these node keys won't be updated due to the joining of the user; the transmissions of these node key are sent to the user sequentially in point-to-point mode and are encrypted by using the key of the new leaf node (Dinsmore: column 2 lines 1-19: prior to eviction).

8. As per claim 4, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein when a new user joins in the service, this user is connected to a node as a new leaf node via its access parent node and this user needs to obtain keys of all nodes including intermediate nodes and root nodes that are passed by the node chain from the access parent node to the root node; these node keys will be updated due to the joining of the user; for the newly-joined user, the transmissions of these new nodes keys are sent to the user sequentially in point-to-point mode and are encrypted by using the key of the new leaf node (Dinsmore: column 2 line 54 – column 3 line 6).

9. As per claim 5, Dinsmore discloses the method of claim 4. Dinsmore further discloses wherein for each node that needs key update, new keys will be encrypted with old keys and will be delivered to the final leaf node's users that they belong to in point-to-multipoint broadcast mode (Dinsmore: column 2 lines 54-67).

10. As per claim 6, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein when a user leaves the service, a leaf node is disconnected from its parent node and the keys of all nodes that the node chain passes by from the disconnected node to the root node of the tree are sequentially updated (Dinsmore: figure 2: the node keys are updated).

11. As per claim 7, Dinsmore discloses the method of claim 6. Dinsmore further discloses wherein for each node that needs key update, the key update of node is performed only after key updates of all its child nodes finish (Dinsmore: column 2 lines 54-57: the update is performed from bottom towards up).

12. As per claim 8, Dinsmore discloses the method of claim 6. Dinsmore further discloses wherein for each node that needs key update, the new node keys are delivered to all child nodes of it one by one in point-to-point mode and are encrypted with key of each child node (Dinsmore: column 2 line 54- column 3 line 16 and figure 2).

13. As per claim 9, Dinsmore discloses the method of claim 8. Dinsmore further discloses wherein each child node still uses the corresponding node key to encrypt the new node key, and delivers the new node key to the final leaf node's users that they belong to in point-to-multipoint mode (Dinsmore: column 2 lines 54-62).

14. As per claim 11, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein the root node locates in the same logical network device as that intermediate node does (Dinsmore: column 1 line 15-31 and figure 2).

15. As per claim 12, Dinsmore discloses the method of claim 1. Dinsmore further discloses wherein said root node locates in the different logical network device from that intermediate node does (Dinsmore: column 1 line 15-31 and figure 2).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dinsmore.

18. As per claim 10, Dinsmore discloses the method of claim 1. Dinsmore discloses the multicast channel can be embodied in various forms such as wireless network, the public internet, a cable network, or a like (Dinsmore: column 1 lines 28-31). Dinsmore does not explicitly disclose the encryption process is accomplished by RNC. However, one with ordinary skill in the art understands that the wireless network includes radio network and radio network controller is essential for controlling communication flow in a radio network. Therefore, it would

have been obvious to one having ordinary skill in the art to utilize RNC for secure communication within network.

Response to Arguments

19. Applicant's arguments filed 5/7/08 have been fully considered but they are not persuasive.

Regarding applicant's remarks, applicant mainly argues that the prior art of record does not disclose applying the key update assignment that transmits the node key in different mode. However, Dinsmore discloses a key hierarchy in which new users receive keys in sequential manner from the root to parent node and if certain users are evicted from the system, replacement keys are distributed to the new user (Dinsmore: column 2 lines 19-31 and figure 1 and 2). Therefore, different mode of key update assignment is disclosed by Dinsmore with respect to whether users are evicted from the system and applicant's argument is traversed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHIN-HON CHEN whose telephone number is (571)272-3789. The examiner can normally be reached on Monday through Friday 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shin-Hon Chen
Primary Examiner
Art Unit 2131

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